

Attorney's Docket: 1999CH017Serial No.: 10/070.622Art Unit 1731Response to the Office Action of Feb. 4, 2003

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Previously Amended) Process for the production of surface-finished paper or board (B_w), characterized in that an aqueous solution (L_w) of a surface-finishing active ingredient (W) is applied to a hydrophilic paper or board sheet (B),

in which (W) consists of

(W_1) polyethylene glycol with an average molecular weight \overline{M}_w of > 1500 or of (W_1) and at least one further additive which is a further finishing additive and/or a formulation additive,

and the paper or board sheet surface-treated with (L_w) is fed through smoothing rolls and dried.

2. (Original) Process according to Claim 1, characterized in that (W) consists of at least 30 % by weight of (W_1) and any remainder to 100 % by weight of at least one further of the finishing additives (W_2) and (W_3) and/or formulation additives (W_4), in which

(W_2) is at least one dye and/or optical brightener,

(W_3) is at least one wet strength additive

and (W_4) is at least one agent for pH adjustment.

3. (Previously Amended) Process according to Claim 1, characterized in that (L_w) contains at least one non-finishing formulation additive (F).

4. (Previously Amended) Process according to claim 1, characterized in that (L_w) essentially consists of (W) and water .

5. (Previously Amended) Process according to claim 1, at a line pressure of the smoothing rolls in the range of 8 to 500 KN/m.

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6.(Previously Amended) Process according to claim 1, characterized in that the paper or board sheet surface-treated with (L_w) is calendered.

7. (Withdrawn)

8. (Withdrawn)

9.(Currently Amended) Paper or board (B_w) surface-finished in accordance with ~~any~~ the process of claim 1.

10.(Currently Amended) Paper or board (B_w) according to Claim 9 which is essentially size-free and is ~~simultaneously~~ intaglio printing and offset printing paper or board.

11.(Previously Amended) Process for the production of graphically processed paper or board by application of at least one graphic ink pattern to a substrate of paper or board, and drying, characterized in that the substrate used for this purpose is surface-finished paper (B_w) or surface-finished board (B_w) according to Claim 9.

12.(Original) Process according to Claims 1, characterized in that (L_w) essentially consists of (W) and water and at least one non-finishing formulation additive (F).

13.(Original) Process according to Claims 1, wherein (W) consists of (W_1) and at least one further finishing additive.

14.(Original) Process according to Claims 1, wherein (W) consists of (W_1) and a formulation additive.

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15.(Currently Amended) Process ~~according to Claims~~ of claim 1, wherein (W) consists of (W₁) and both a further finishing additive and a formulation additive.

16.(Original) Process according to Claim 1, characterized in that the further additives are selected from finishing additives (W₂) and (W₃) and/or formulation additives (W₄), in which

(W₂) is at least one dye and/or optical brightener,

(W₃) is at least one wet strength additive

and (W₄) is at least one agent for pH adjustment.

17.(New) A process for the production of surface-finished paper or board (B_w), said process comprising

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- a) forming a paper web (B) from an aqueous pulp suspension comprising water and transporting the paper web to a press section to remove at least a portion of the water from the paper web to provide a hydrophilic paper or board sheet having a water content of less than or equal to 30 weight percent;
 - b) applying to a surface of the hydrophilic paper or board sheet (B) an aqueous solution (L_w) which consists of a polyethylene glycol (W₁) having an average molecular weight greater than 1500 or said polyethylene glycol and a further additive selected from the group consisting of a water soluble dye, an optical brightener, a wet strength additive, an agent for pH adjustment, a non-finishing additive, and mixtures thereof to provide a surface-treated paper or board sheet; and,
 - c) passing the surface-treated paper or board sheet to a smoothing roll zone and therein subjecting the surface treated paper or board sheet to pressure and drying to provide the surface-finished paper or board sheet.

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- 18.(New) The process of claim 17 wherein the aqueous solution consists of the polyethylene glycol and a water soluble dye and/or an optical brightener, wherein the polyethylene glycol has an average molecular weight of between 1600 and 4000.
- 19.(New) The process of claim 17 wherein the aqueous solution consists of the polyethylene glycol and a wet strength additive and/or an optical brightener, wherein the polyethylene glycol has an average molecular weight of between 2000 and 20,000.
- 20.(New) A process for the production of surface-finished paper or board, said process comprising
- passing a hydrophilic paper or board sheet to a re-wetting zone and therein moistening the hydrophilic paper or board sheet to a moisture content from 4 to 16 % by weight to provide a re-moistened sheet;
 - applying uniformly to a surface of the re-moistened sheet an aqueous solution (L_w) which consists essentially of a polyethylene glycol (W_1) having an average molecular weight greater than 1500 or said polyethylene glycol and a further additive selected from the group consisting of a water soluble dye, an optical brightener, a wet strength additive, an agent for pH adjustment, a non-finishing additive, and mixtures thereof to provide a surface-treated paper or board sheet; and,
 - passing the surface-treated paper or board sheet to a smoothing roll zone and therein subjecting the surface treated paper or board sheet to pressure and drying to provide the surface-finished paper or board sheet.
- 21.(New) The process of claim 20 wherein the moistening in the re-wetting zone comprises contacting the hydrophilic paper or board sheet with water or with a re-moisturizing solution comprising water and from 0.01 to 10 % by weight of a polyethylene glycol having an average molecular weight greater than 1500.
- 22.(New) The process of claim 20 wherein the smoothing roll zone comprises calendering.